237911
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by

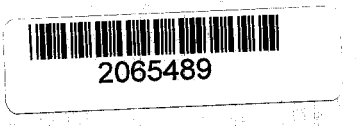
# EEB CHEMICAL PROFILE

# Pirimiphos-methyl

Actellic 5E

## 100. MINIMUM REQUIREMENTS:

| Species | Test Type | Results | Author, Date | Number | Category |
|---|---|---|---|---|---|
| **SECT. 158.145 WILDLIFE AND AQUATIC ORGANISMS** | | | | | |
| **Avian and Mammalian Testing** | | | | | |
| 71-1 Avian Acute Oral | Technical | 1516 mg/kg | Ross et al 1979 | 41311D-01 | Invalid |
| Japanese quail *Coturnix coturnix* | Technical | 140 mg/kg | Gage, 1971 | 097679 | Invalid |
| Pigeon (species unknown) | Technical | <800 mg/kg | Gage, 1971 | 097679 | Invalid |
| Greenfinch (species unknown) | Technical | 200-400 mg/kg | Gage, 1972 | 097679 | Invalid |
| 71-2 Avian Dietary | | | | | |
| Mallard duck *Anas platyrhynchos* | Technical | 633 (453-883) ppm | Finc, 1974 | 097679 | Core |
| Bobwhite quail *Colinus virginianus* | Technical | 207 (106-407) ppm | Fick, 1974 | 097679 | Core |
| **Aquatic Organism Testing** | | | | | |
| 72-2 Freshwater Fish | | | | | |
| Rainbow trout *Salmo gairdneri* | Technical (88.9%) | 0.404 (0.360-.446) mg/l | Hill, 1978 | 097679 | Core |
| Rainbow trout *Salmo gairdneri* | YF6522A[1] | 1.2 (0.92-1.5) ppm | Hill, 1975 | 097679 | Supplemental[2] |



| | | | | | |
|---|---|---|---|---|---|
| Bluegill sunfish<br>*Lepomis macrochirus* | YF6522A[1] | 2.9 (2.6-3.1) ppm | Hill, 1978 | 097679 | Supplemental[2] |
| Fathead minnow<br>*Pimephales promelus* | Technical (88.9%) | 2.5 (2.4-2.7) ppm | Hill, 1988 | 097679 | Core |
| 72-1<br>Freshwater Invertebrates | | | | | |
| *Daphnia magna* | Technical (99.5%) | 0.21 (0.15-0.31) µg/l | Evered, 1976 | 097679 | Core |
| *Daphnia magna* | 50% EC | 0.11 (0.08-0.15) µg/l | Evered, 1976 | 097679 | Supplemental |
| 141-1<br>Beneficial Insects | | | | | |
| Honey bee<br>*Apis melifera* | Technical | 0.39 µg/bee contact (n=2)<br>0.36 µg/bee oral (n=1) | Stevenson, 1978 | 05001991 | Core |

1. "According to the registrant, YF6522A is the name for a formulation very similar to Actellic 5E", Natala (1983).
2. "Although originally validated as Core, these studies should more properly be categorized as supplemental and repairable to Core should there eve be a requirement for a study performed on the formulated product", Natala (1985).

101. General Toxicology
(references for the Toxicology Branch):

102. Physical and Chemical Properties:

102.1 Chemical name: 0-[2-(diethylamino)-6-methyl-4-pyrimidinyl0,0-dimethyl phosphorothiate

102.2 Empirical formula:

102.3 Structural formula:

102.4 Common name: Pirimophos.

Producer of technical product-
ICI Americas Inc.
Agricultural Chemicals Division
Wilmington, DE 19897

102.5 Trade name- Actellic 5E.

Producer of formulated product - same.

102.6 Chemical and physical properties:

Molecular weight-
Physical state- liquid
Color- pale yellow
Odor- strong, unpleasant smell
Melting point-
Specific gravity-
Solubility-
Octanol/water partition coefficient-
Soil adsorption coefficient $K_d$-
Vapor pressure-

103. Behavior in the Environment:

"The rate of degradation of Pirimiphos on stored products is usually slow, dependent upon the amount of moisture content of the grain. At a treatment rate of 4 or 8 ppm to stored wheat, only 20% of the chemical was hydrolyzed in eight months (when the moisture content averaged 13%). Up to 86% was hydrolyzed over the same period at an average of 19% moisture content. Grains which are treated with pirimiphos are stored in warehouses where conditions are carefully controlled". (Matheny, 1979).

103.1 Soil:

Pirimiphos degrades to eight, unnamed compounds.

Soil photodegradation-
Soil leaching-
Soil dissipation-

103.2 Water:

"Pirimiphos is rapidly hydrolyzed in water. At a pH of 6.5 in distilled water the product was rapidly hydrolyzed, with a half life of roughly 3 days" (Matheny, 1979).

103.3 Plant:

103.4 Animal:

"Livestock metabolism and residue studies previously submitted (Acc. No. 097674) are summarized below:

a) Pirimiphos-methyl is extensively metabolized and excreted by livestock so that residues in meat and milk are very small (0.003 ppm, 0.18 ppm in lactating goats).

b) From cows, milk contained 0.04 ppm Pirimiphos-methyl (75% of which could be separated from the fat and protein fraction by extraction).

c) Groups of three cows, fed 0,5,15 and 50 ppm Pirimiphos-methyl did exceed 0.02 ppm in milk samples.

d) Groups of four pigs fed 0,3,10 and 34 ppm Pirimiphos-methyl for up to 29 days showed no residues in kidney, liver, lung, heart or muscle.

e) Hens given an equivalent to 4 ppm in the daily diet for 28 days did not exceed 0.04 ppm Pirimiphos-methyl in eggs or 0.3 ppm in muscle.

f) A groups of three hens fed at an equivalent to 32 ppm in the diet for 7 days resulted in residues of up to 0.15 ppm in eggs and 0.41 ppm in muscle.

g) Groups of lying hens were maintained at 28 days on diets containing 0,4,12 and 40 ppm Pirimiphos-methyl. At all but the highest level,m residues in eggs were below 0.01 ppm. At the 40 ppm level residues in the egg yolk reached a plateau of 0.03-0.04 ppm after 7 days." (Matheny, 1979).

103.5 Estimated Environmental Concentrations:
(Scenario, rate, EEC source, date generated, EEC, etc.)

104. Uses and Special Concerns:
(Major registered uses, field kills, specific concerns etc.)